

### Three New Species of *Aphelinus* (Hym.).

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Peru.

#### *Aphelinus capitis* sp. nov.

♀. Length, 0.75 mm.; expanse, 1.7 mm.; greatest width of forewing, 0.27 mm.

Antennal scape long and slender, reaching to top of head, slightly compressed laterally and of nearly equal cross section throughout its length except at the extremities where it tapers sharply to the articulations; pedicel just a trifle less than half as long as the scape and nearly half again as wide at its widest point, increasing gradually in diameter to a point just distad of its middle where it is half as wide as long; funicle joint 1 triangular in outline, *very* small and sometimes quite indistinct, being of less than half the size of funicle joint 2, which latter is of the same diameter as the pedicel and of a bit less than one-third its length; the penultimate joint is from two-thirds to four-fifths as long as the pedicel and just a shade wider, it is also three times as long as the second funicle joint which it just exceeds in diameter; the second or ultimate club joint, which is compressed laterally, is three times as long as the penultimate joint and at least one-third wider (when seen in broad outline), widest just distad of the middle from where it tapers rapidly to a blunt point. A deep constriction occurs between the two club joints separating them quite distinctly. Club, with a few longitudinal keels and (in common with the rest of the antenna) sparsely hairy.

Eyes hairy. Head and rest of body very similar to *A. diaspidis* How. both in shape, position and number of hairs or spines and in general sculpture, except that the mesoscutum and mesoscutellum of *A. capitis* are faintly longitudinally striated instead of showing the slightly tessellated pattern of *A. diaspidis*.

The forewings, in structure, are nearest like those of *A. mytilaspidis* How., but differ in that the discal cilia do not appear to be quite so plentiful as in the last named species. In *A. capitis* there is a greater difference in the length of the cilia on opposite sides of the hairless streak, those distad being seemingly shorter than in *A. mytilaspidis* and those proximad being slightly longer. The latter cilia, although of about the same numbers as those of *A. mytilaspidis*, more nearly occupy all of the wing surface proximad of the hairless streak, thus producing the impression that the wing is less densely ciliated than in *A. mytilaspidis*. Hind wings as in other species of *Aphelinus*.

Color: Head brownish yellow to orange yellow; eyes blackish except with strong light through them, when they appear garnet-colored; ocelli dark red; antennae concolorous with body or a trifle more

brownish; abdomen and thorax rather a dirty yellow which deepens in some places (notably on dorsal part of thorax) to a honey yellow or brownish yellow. Legs, very light yellow, often nearly white especially toward their extremities; forewings, with a distinct fuscous patch covering the proximal half, the fuscosity being especially pronounced around the stigma and at the proximal border of the patch of discal cilia, much as in *A. fuscipennis* How. Wing veins from honey yellow to almost hyaline.

♂. Unknown.

Described from twenty-five female specimens reared by P. H. Timberlake, of the U. S. Bureau of Entomology, as follows: from *Aspidiotus hederæ* on Ivy (*Hedera helix*), Redlands, California, February 20, 1911, and February 26, 1912, and at Santa Barbara, California, November 8, 1911, and May 7, 1912; from *Chionaspis pinifoliæ* on *Pinus radiata*, Santa Barbara, California; July 8, 1911, and July 15, 1911; from *Aspidiotus hederæ* on oleander (*Nerium oleander*), Santa Barbara, California, April 21, 1911, and May 4, 1911; from *Aspidiotus camelliæ* on oleander (*Nerium oleander*), Whittier, California, March 27, 1911; from *Aspidiotus* sp. on *Pinus radiata*, Santa Maria, California, August 4, 1911; from *Aulacaspis zaminae* on *Cycas revoluta*, Montecito, California, August 2, 1912. Also two female specimens reared by the writer from *Aspidiotus camelliæ* on *Schinus molle*, Pasadena, California, July 28, 1911. Both glycerine and balsam mounts.

Type on slide labeled: *Aphelinus capitis*. Ex *Aspidiotus camelliæ* Sign. on *Hedera helix* (Ivy). 14647 B. May 7, 1912. Santa Barbara, Cal. P. H. Timberlake.

The above species greatly resembles *Aphelinus diaspidis* How. in shape, size, arrangement of the hairs or spines on the body and the infuscation of the wings, but in coloration it more nearly approaches *Aphelinus mytilaspidis*. Also in the ciliation of the wings it resembles most closely *A. mytilaspidis*. However, the small size of the first funicle joint of the antennae at once differentiates this from any other species of *Aphelinus*, and together with the other differences pointed out above, render it a very distinct and unmistakable species. The hairy eyes are also rather exceptional in a species whose general color scheme is as light as that of the insect in question.

**Aphelinus quaylei** sp. nov.

♀. Length, 0.81 mm.; expanse, 1.41 mm.; greatest width of forewing, 0.21 mm.

Antennal scape long and slender, reaching to top of head, somewhat compressed laterally; pedicel one-third as long as scape and of same width as latter when the same is seen in broadest outline (*i. e.*, side view), increasing gradually in diameter from proximal to distal end; funicle joints taken together are just a shade more than half as long as the pedicel and of the same diameter as the latter at its widest point, first funicle joint slightly longer than the second and the division between these two joints oblique, as is also that between the second funicle joint and the penultimate club joint; the inner side of each funicle joint is longer than the outer side while the opposite is true of the penultimate club joint, thus making each of these three joints somewhat trapezoidal in outline; penultimate club joint about three-fourths as long as the pedicel and a trifle greater in diameter; last antennal joint more or less compressed laterally, at least three times as long as preceding joint (sometimes three and one-half times as long) and about one-third wider than the same (club seen in broad outline), of nearly equal cross section throughout its length, only tapering abruptly to a blunt point from a place very near the distal end. Club with a few longitudinal keels, the two joints being distinctly separated by a well-defined constriction. Antennae moderately hairy throughout.

Eyes faintly hairy. Head and rest of body most closely resembling that of *A. capitis* n. sp. described above, except that the abdomen is naked, or at most, bears a very few very inconspicuous hairs on the edges of one or two segments.

Wings densely ciliated, all cilia being unusually long. On the forewing the discal cilia proximad to the hairless streak are fully twice as long as the others and are arranged in four, or at most five rows.

Color: Head brownish yellow to orange yellow, sometimes with a pinkish cast; eyes, dark garnet red; ocelli, dark red; antennae, concolorous with rest of body which is of a lemon yellow throughout, sometimes deepening to canary yellow on the dorsum; wings hyaline except for a small, faint fuscous patch on the forewings in the clear space between the insertion of the wing and the first discal cilia. Wing veins from nearly hyaline to lemon-colored.

♂. Unknown.

Described from many female specimens reared by the writer at Lima, Peru, and throughout the Department of Piura, Peru, from *Pseudaonidia articulatus*, *Hemichionaspis minor* and *Aspidiotus camelliae* on various hosts. Also reared by P. H.

Timberlake, of the U. S. Bureau of Entomology, from *Chrysomphalus aurantii* and *Chrysomphalus aurantii citrinus* on citrus trees at Avondale, Walnut, Carpentaria and Whittier, California.

Type on slide labeled: 192<sup>o</sup> 3b.; *Aphelinus quaylei* ex. *Pseudonidia articulatus* on *Ficus nitidis*. Lima, Peru. January 31, 1914.—E. W. Rust.

Named in honor of Prof. H. J. Quayle, who has so ably worked out the life history of this parasite; the account of which appears in Bulletin No. 222, California Agricultural Experiment Station, p. 131 (1911). At that time, however, the species was not recognized as being distinct from *A. diaspidis*, and it is under the latter name that the life history is given. The figure (Fig. 21) published therewith is evidently that of *A. diaspidis* and not of *A. quaylei*, to which it does not conform in either antennae, abdomen or wings.

***Aphelinus limonus* sp. nov.**

♀. Length, 0.9 mm.; expanse, 1.55 mm.; greatest width of forewing, 0.23 mm.

Antennal scape rather long and slender, reaching nearly to top of head, somewhat compressed laterally; pedicel a trifle less than one-third as long as scape and of same diameter as the latter at its widest point, increasing slightly in diameter from proximal to distal extremity; funicle joints subequal, taken together they are about two-thirds as long as the pedicel and of about two-thirds the diameter of the same; penultimate club joint of same length as the two preceding joints taken together and of the same diameter as the pedicel; ultimate club joint somewhat compressed laterally, three times as long as the penultimate joint and about one-third greater in diameter at its thickest point; when seen in broad outline it presents one *slightly* curved edge while the other curves more sharply from near the center to the tip, causing the distal half of the club to resemble one horn of a rather blunt crescent. Club slightly longitudinally keeled, the two joints being distinctly separated by a well-defined articulation. Antennae very sparsely hairy.

Eyes naked. Head (especially the vertex) and dorsal part of thorax marked with a coarsely tessellated pattern which is generally quite well-defined. Abdomen naked, and rest of body much less hairy than is common in this genus.

Wing structure like that of *A. quaylei* n. sp. described above except that the discal cilia proximad to the hairless streak are, in certain cases, even *more* than twice as long as the others.

Color: Eyes, black; ocelli, dark red; rest of body of a uniform, semi-transparent, lemon yellow except that the antennae sometimes have a slightly deeper and more brownish cast; wings hyaline except for a slight lemon tinge to the veins.

♂. Unknown.

Described from fourteen female specimens received from E. M. Ehrhorn in a lot of *Hemichionaspis minor* on "pigeon-pea," which he sent to this office from Honolulu, Territory of Hawaii, in June, 1911. Balsam mounts.

Type, one of four on slide labeled: 1<sup>o</sup> 3r. *Aphelinus limonus* ex. *Hemichionaspis minor* on pigeon-pea. Honolulu, T. H. VI-5-1911. E. M. E. The type specimen lies closest to the slide-label.

This species very closely resembles *A. quaylei* n. sp. and the following points will be of especial use in separating them.

<i>Aphelinus quaylei.</i>	<i>Aphelinus limonus.</i>
1 Smaller than <i>A. limonus</i> .	1 Larger than <i>A. quaylei</i> .
2 Slightly more deeply colored than <i>A. limonus</i> .	2 Slightly lighter than <i>A. quaylei</i> .
3 Head yellowish brown or brownish orange.	3 Head lemon-colored.
4 Dorsum of thorax striated.	4 Dorsum of thorax tessellated.
5 Forewings with a slight fuscous patch at insertion.	5 Wings hyaline.
6 Eyes slightly hairy.	6 Eyes naked.
7 Eyes dark garnet red.	7 Eyes black.
8 Funicle joints fairly large, closely joined and rather trapezoidal in outline.	8 Funicle joints smaller, regular, bead-shaped and well-separated.
9 Club rather slender and abruptly pointed.	9 Club stouter and having a longer curve to the point. Discal cilia of wings extremely long, often seeming even longer than those of <i>A. quaylei</i> .

All types to be deposited in the United States National Museum at Washington, D. C.